



SEQUENCE LISTING

<10> Garry, Jr., Robert F.
McKeating, Jane A.
Dash, Srikanta
Coy, David H.

<120> FLAVIVIRUS FUSION INHIBITORS

<130> 12920.0014.PCUS00

<140> US 10/532,480
<141> 2005-04-22

<150> 60/424,746
<151> 2002-11-08

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<170> PatentIn version 3.4

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Tyr Gln Val Arg Asn Ser Ser Gly Leu Tyr His Val Thr Asn Asp Cys
1 5 10 15

Pro Asn Ser Ser Ile Val Tyr Glu Ala Ala Asp Ala Ile Leu
20 25 30

<210> 2
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Cys	Ser	Ala	Leu	Tyr	Trp	Val	Gly	Asp	Leu	Cys	Gly	Ser	Val	Phe	Leu
1				5					10					15	

Val	Gly	Gln	Leu	Phe	Thr	Phe	Ser	Pro	Arg	Arg	His	Trp	Thr	Thr	Gln
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Asp Cys

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<400> 3

Ser Pro Arg Arg His Trp Thr Thr Gln Asp Cys Asn Cys Ser Ile Tyr
 1 5 10 15

Pro Gly His Ile Thr Gly His Arg Met Ala Trp Asp Met Met Met Asn
 20 25 30

Trp Ser Pro Thr
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Met Met Met Asn Trp Ser Pro Thr Ala Ala Leu Leu Arg Ile Pro Gln
 1 5 10 15

Ala Ile Met Asp Met Ile Ala Gly Ala His Trp Gly Val Leu Ala Gly
 20 25 30

Ile Lys Tyr Phe Ser Met Val Gly Asn Trp
 35 40

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<400> 5

Arg	Val	Thr	Asp	Pro	Asp	Thr	Asn	Thr	Thr	Ile	Leu	Thr	Asn	Cys	Cys
1				5					10					15	

Gln	Arg	Asn	Gln	Val	Ile	Tyr	Cys	Ser	Pro	Ser	Thr	Cys	Leu
		20						25					30

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Arg	Asp	Phe	Val	Glu	Gly	Val	Ser	Gly	Gly	Ser	Trp	Val	Asp	Ile	Val
1				5					10					15	

Leu	Glu	His	Gly	Ser	Cys	Val	Thr	Thr	Met	Ala	Lys	Asn	Lys	Pro	Thr
			20					25					30		

Leu	Asp	Phe
		35

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<211> 35

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<400> 7

Arg Asp Phe Ile Glu Gly Ala Ser Gly Ala Thr Trp Val Asp Leu Val
1 5 10 15

Leu Glu Gly Asp Ser Cys Leu Thr Ile Met Ala Asn Asp Lys Pro Thr
20 25 30

Leu Asp Val
35

<210> 8

<211> 35

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<400> 8

Arg Asp Phe Ile Glu Gly Val His Gly Gly Thr Trp Val Ser Ala Thr
 1 5 10 15

Leu Glu Gln Asp Lys Cys Val Thr Val Met Ala Pro Asp Lys Pro Ser
 20 25 30

Leu Asp Ile
 35

<210> 9
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<400> 9

Arg Asp Phe Leu Glu Gly Val Ser Gly Ala Thr Trp Val Asp Leu Val
 1 5 10 15

Leu Glu Gly Asp Ser Cys Val Thr Ile Met Ser Lys Asp Lys Pro Thr
 20 25 30

Ile Asp Val
 35

<210> 10
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carbohydrate

<400> 10

Gly	Gln	Leu	Ala	Cys	Lys	Glu	Asp	Tyr	Arg	Tyr	Ala	Ile	Ser	Ser	Thr
1				5					10				15		

Asn	Glu	Ile	Gly	Leu	Leu	Gly	Ala	Gly	Gly	Leu	Thr	Thr	Thr	Trp	Lys
			20					25					30		

Glu	Tyr	Asn
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<210> 11

<211> 35

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carbohydrate

<400> 11

Gly	His	Leu	Asp	Cys	Lys	Pro	Glu	Phe	Ser	Tyr	Ala	Ile	Ala	Lys	Asp
1				5					10					15	

Glu	Arg	Ile	Gly	Gln	Leu	Gly	Ala	Glu	Gly	Leu	Thr	Thr	Thr	Trp	Lys
			20					25					30		

Glu	Tyr	Ser
		35

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 Gly Glu Phe Ala Cys Arg Glu Asp His Arg Tyr Ala Leu Ala Lys Thr
 1 5 10 15

 Lys Glu Ile Gly Pro Leu Gly Ala Glu Ser Leu Thr Thr Thr Trp Thr
 20 25 30

 Asp Tyr Gln
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 <210> 13
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<400> 13

Thr Cys Asp Ala Leu Asp Ile Gly Glu Leu Cys Gly Ala Cys Val Leu
1 5 10 15

Val Gly Asp Trp Leu Val Arg His Trp Leu Ile His Ile Asp Leu Asn
20 25 30

Glu Thr

<210> 14

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<400> 14

Lys Arg Phe Val Cys Lys His Ser Met Val Asp Arg Gly Trp Gly Asn
1 5 10 15

Gly Cys Gly Leu Phe Gly Lys Gly Gly Ile Val Thr Cys Ala Met Phe
20 25 30

Thr Cys

<210> 15

<211> 34

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<400> 15

Ser Ser Tyr Val Cys Lys Gln Gly Phe Thr Asp Arg Gly Trp Gly Asn
 1 5 10 15

Gly Cys Gly Leu Phe Gly Lys Gly Ser Ile Asp Thr Cys Ala Lys Phe
 20 25 30

Ser Cys

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Gly Asp Asn Ala Cys Lys Arg Thr Tyr Ser Asp Arg Gly Trp Gly Asn
 1 5 10 15

Gly Cys Gly Leu Phe Gly Lys Gly Ser Ile Val Ala Cys Ala Lys Phe

Thr Cys

<210> 17
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<400> 17

Pro Ala Phe Val Cys Arg Gln Gly Val Val Asp Arg Gly Trp Gly Asn
 1 5 10 15

Gly Cys Gly Leu Phe Gly Lys Gly Ser Ile Asp Thr Cys Ala Lys Phe
 20 25 30

Ala Cys

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<400> 18

Lys Gly Lys Tyr Asn Thr Thr Leu Leu Asn Gly Ser Ala Phe Tyr Leu
 1 5 10 15

Val Cys Pro Ile Gly Trp Thr Gly Val Ile Glu Cys Thr Ala Val Ser
 20 25 30

Pro Thr

<210> 19
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Arg Gly Lys Phe Asn Thr Thr Leu Leu Asn Gly Pro Ala Phe Gln Met
 1 5 10 15

Val Cys Pro Ile Gly Trp Thr Gly Thr Val Ser Cys Thr Ser Phe Asn
 20 25 30

Met Asp

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<400> 20

Arg Gly Lys Tyr Asn Ala Thr Leu Leu Asn Gly Ser Ala Phe Gln Leu
 1 5 10 15

Val Cys Pro Tyr Glu Trp Thr Gly Arg Val Glu Cys Thr Thr Ile Ser
 20 25 30

Lys Ser

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<400> 21

Ile His Ile Asp Leu Asn Glu Thr Gly Thr Cys Tyr Leu Glu Val Pro
 1 5 10 15

Thr Gly Ile Asp Pro Gly Phe Leu Gly Phe Ile Gly Trp Met Ala Gly
 20 25 30

Lys Val Glu Ala
 35

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<400> 22

Met Val Leu Leu Gln Met Glu Asp Lys Ala Trp Leu Val His Arg Gln
 1 5 10 15

Trp Phe Leu Asp Leu Pro Leu Pro Trp Leu Pro Gly Ala Asp Thr Gln
 20 25 30

Gly Ser Asn Trp
 35

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<400> 23

Phe Tyr Val Met Thr Val Gly Ser Lys Ser Phe Leu Val His Arg Glu
1 5 10 15

Trp Phe His Asp Leu Ala Leu Pro Trp Thr Ser Pro Ser Ser Thr Ala
20 25 30

Trp Arg Asn Arg
35

<210> 24

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<400> 24

Ser Tyr Ile Ala Glu Met Glu Thr Glu Ser Trp Ile Val Asp Arg Gln
1 5 10 15

Trp Ala Gln Asp Leu Thr Leu Pro Trp Gln Ser Gly Ser Gly Gly Val
20 25 30

Trp Arg Glu Met
35

<210> 25
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 <400> 25

 Tyr Tyr Val Met Thr Val Gly Thr Lys Thr Phe Leu Val His Arg Glu
 1 5 10 15

 Trp Phe Met Asp Leu Asn Leu Pro Trp Ser Ser Ala Gly Ser Thr Val
 20 25 30

 Trp Arg Asn Arg
 35

 <210> 26
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carbohydrate

<400> 26

Thr Leu Arg Thr Glu Val Val Lys Thr Phe Arg Arg Asp Lys Pro Phe
1 5 10 15

Pro His Arg Met Asp Ala Val Thr Thr Thr Val Glu Asn Glu Asp Leu
20 25 30

Phe Tyr

<210> 27

<211> 34

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<400> 27

Thr Leu Ala Thr Glu Val Val Lys Ile Tyr Lys Arg Thr Lys Arg Phe
1 5 10 15

Arg Ser Gly Leu Val Ala Thr His Thr Thr Ile Tyr Glu Glu Asp Leu
20 25 30

Tyr His

<210> 28

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Thr Leu Ala Thr Thr Val Val Arg Thr Tyr Arg Arg Ser Lys Pro Phe
 1 5 10 15

Pro His Arg Gln Gly Ala Ile Thr Gln Lys Asn Leu Gly Glu Asp Leu
 20 25 30

His

<210> 29
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<400> 29

Trp Met Ala Gly Lys Val Glu Ala Val Ile Phe Leu Thr Lys Leu Ala
 1 5 10 15

Ser Gln Val Pro Tyr Ala Ile Ala Thr Met Phe Ser Ser Val His Tyr
 20 25 30

Leu Ala Val Gly Ala Leu Ile Tyr Tyr Ser
 35 40

<210> 30
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 <222> (1)..(1)
 <223> The amino-terminal amino acid residue comprises an amino group or is modified to contain one of the following groups: acetyl, hydrophobic, macromolecular, carbobenzoxy, dansyl, t-butyloxycarbonyl, lipid, polyethylene glycol, or carbohydrate

<220>
 <221> MOD_RES
 <222> (42)..(42)
 <223> The carboxy-terminal amino acid residue comprises a carboxyl group or one of the following groups: amido, hydrophobic, macromolecular, t-butyloxycarbonyl, lipid, polyethyleneglycol, or carbohydrate

<400> 30

Met Ala Ile Leu Gly Asp Thr Ala Trp Asp Phe Gly Ser Leu Gly Gly.
 1 5 10 15

Val Phe Thr Ser Ile Gly Lys Ala Leu His Gln Val Phe Gly Ala Ile
 20 25 30

Tyr Gly Ala Ala Phe Ser Gly Val Ser Trp
 35 40

<210> 31
 <211> 42
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic Peptide

<220>
 <221> MOD_RES
 <222> (1)..(1)
 <223> The amino-terminal amino acid residue comprises an amino group or is modified to contain one of the following groups: acetyl, hydrophobic, macromolecular, carbobenzoxy, dansyl, t-butyloxycarbonyl, lipid, polyethylene glycol, or carbohydrate

<220>
 <221> MOD_RES

<222> (42)..(42)
 <223> The carboxy-terminal amino acid residue comprises a carboxyl group or one of the following groups: amido, hydrophobic, macromolecular, t-butyloxycarbonyl, lipid, polyethyleneglycol, or carbohydrate

<400> 31

Leu Ala Ala Leu Gly Asp Thr Ala Trp Asp Phe Gly Ser Ile Gly Gly
 1 5 10 15

Val Phe Asn Ser Ile Gly Lys Ala Val His Gln Val Phe Gly Gly Ala
 20 25 30

Phe Arg Thr Leu Phe Gly Gly Met Ser Trp
 35 40

<210> 32
 <211> 42
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic Peptide

<220>
 <221> MOD_RES
 <222> (1)..(1)
 <223> The amino-terminal amino acid residue comprises an amino group or is modified to contain one of the following groups: acetyl, hydrophobic, macromolecular, carbobenzoxy, dansyl, t-butyloxycarbonyl, lipid, polyethylene glycol, or carbohydrate

<220>
 <221> MOD_RES
 <222> (42)..(42)
 <223> The carboxy-terminal amino acid residue comprises a carboxyl group or one of the following groups: amido, hydrophobic, macromolecular, t-butyloxycarbonyl, lipid, polyethyleneglycol, or carbohydrate

<400> 32

Leu Ala Val Met Gly Asp Thr Ala Trp Asp Phe Ser Ser Ala Gly Gly
 1 5 10 15

Phe Phe Thr Ser Val Gly Lys Gly Ile His Thr Val Phe Gly Ser Ala
 20 25 30

Phe Gln Gly Leu Phe Gly Gly Leu Asn Trp
 35 40

<210> 33
 <211> 42
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic Peptide

<220>
 <221> MOD_RES
 <222> (1)..(1)
 <223> The amino-terminal amino acid residue comprises an amino group or is modified to contain one of the following groups: acetyl, hydrophobic, macromolecular, carbobenzoxy, dansyl, t-butyloxycarbonyl, lipid, polyethylene glycol, or carbohydrate

<220>
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 <222> (42)..(42)
 <223> The carboxy-terminal amino acid residue comprises a carboxyl group or one of the following groups: amido, hydrophobic, macromolecular, t-butyloxycarbonyl, lipid, polyethyleneglycol, or carbohydrate

<400> 33

Leu Ala Ala Leu Gly Asp Thr Ala Trp Asp Phe Gly Ser Val Gly Gly
 1 5 10 15

Val Phe Thr Ser Val Gly Lys Ala Val His Gln Val Phe Gly Gly Ala
 20 25 30

Phe Arg Ser Leu Phe Gly Gly Met Ser Trp
 35 40

<210> 34
 <211> 42
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic Peptide

<220>
 <221> MOD_RES
 <222> (1)..(1)
 <223> The amino-terminal amino acid residue comprises an amino group or is modified to contain one of the following groups: acetyl, hydrophobic, macromolecular, carbobenzoxy, dansyl, t-butyloxycarbonyl, lipid, polyethylene glycol, or carbohydrate

<220>
 <221> MOD_RES
 <222> (42)..(42)
 <223> The carboxy-terminal amino acid residue comprises a carboxyl group or one of the following groups: amido, hydrophobic, macromolecular, t-butyloxycarbonyl, lipid, polyethyleneglycol, or carbohydrate

<400> 34

Gln Gln Tyr Met Leu Lys Gly Glu Tyr Gln Tyr Trp Phe Asp Leu Asp

```

1              5              10              15
Val Thr Asp Arg His Ser Asp Tyr Phe Ala Glu Phe Val Val Leu Val
      20              25              30

Val Val Ala Leu Leu Gly Gly Arg Tyr Ile
      35              40

<210> 35
<211> 42
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Peptide

<220>
<221> MOD_RES
<222> (1)..(1)
<223> The amino-terminal amino acid residue comprises an amino group or
      is modified to contain one of the following groups: acetyl,
      hydrophobic, macromolecular, carbobenzoxy, dansyl,
      t-butyloxycarbonyl, lipid, polyethylene glycol, or carbohydrate

<220>
<221> MOD_RES
<222> (42)..(42)
<223> The carboxy-terminal amino acid residue comprises a carboxyl
      group or one of the following groups: amido, hydrophobic,
      macromolecular, t-butyloxycarbonyl, lipid, polyethyleneglycol, or
      carbohydrate

<400> 35

Gln Gln Tyr Met Leu Lys Gly Glu Tyr Gln Tyr Trp Phe Asp Leu Glu
1              5              10              15

Val Thr Asp His His Arg Asp Tyr Phe Ala Glu Ser Ile Leu Val Val
      20              25              30

Val Val Ala Leu Leu Gly Gly Arg Tyr Val
      35              40

<210> 36
<211> 43
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Peptide

<220>
<221> MOD_RES
<222> (1)..(1)
<223> The amino-terminal amino acid residue comprises an amino group or
      is modified to contain one of the following groups: acetyl,
      hydrophobic, macromolecular, carbobenzoxy, dansyl,

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t-butyloxycarbonyl, lipid, polyethylene glycol, or carbohydrate

<220>

<221> MOD_RES

<222> (43)..(43)

<223> The carboxy-terminal amino acid residue comprises a carboxyl group or one of the following groups: amido, hydrophobic, macromolecular, t-butyloxycarbonyl, lipid, polyethyleneglycol, or carbohydrate

<400> 36

Gln Gln Tyr Met Leu Lys Gly Gln Tyr Gln Tyr Trp Phe Asp Leu Glu
1 5 10 15

Val Ile Ser Ser Thr His Gln Ile Asp Leu Thr Glu Phe Ile Met Leu
20 25 30

Ala Val Val Ala Leu Leu Gly Gly Arg Tyr Val
35 40

<210> 37

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Peptide

<220>

<221> misc_feature

<222> (2)..(2)

<223> Xaa can be any naturally occurring amino acid

<400> 37

Arg Xaa Arg Lys Arg
1 5

<210> 38

<211> 18

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Peptide

<400> 38

Ser Cys Leu Thr Val Pro Ala Ser Ala Tyr Gln Val Arg Asn Ser Ser
1 5 10 15

Gly Leu

<210> 39

<211> 18

<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Peptide

<400> 39

Ser Ala Tyr Gln Val Arg Asn Ser Ser Gly Leu Tyr His Val Thr Asn
1 5 10 15

Asp Cys

<210> 40
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide

<400> 40

Ser Ser Gly Leu Tyr His Val Thr Asn Asp Cys Pro Asn Ser Ser Ile
1 5 10 15

Val Tyr

<210> 41
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide

<400> 41

Thr Asn Asp Cys Pro Asn Ser Ser Val Val Tyr Glu Ala Ala Asp Ala
1 5 10 15

Ile Leu

<210> 42
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide

<400> 42

Ser Ile Val Tyr Glu Ala Ala Asp Ala Ile Leu His Thr Pro Gly Cys

1	5	10	15
---	---	----	----

Val Pro

<210> 43
 <211> 18
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic peptide

<400> 43

Asp	Ala	Ile	Leu	His	Thr	Pro	Gly	Cys	Val	Pro	Cys	Val	Arg	Glu	Gly
1				5					10					15	

Asn Ala

<210> 44
 <211> 18
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic peptide

<400> 44

Gly	Cys	Val	Pro	Cys	Val	Arg	Glu	Gly	Asn	Ala	Ser	Arg	Cys	Trp	Val
1				5					10					15	

Ala Val

<210> 45
 <211> 18
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic peptide

<400> 45

Trp	Val	Ala	Val	Thr	Pro	Thr	Val	Ala	Thr	Arg	Asp	Gly	Lys	Leu	Pro
1				5					10					15	

Thr Thr

<210> 46
 <211> 18
 <212> PRT
 <213> Artificial Sequence

<220>

<223> Synthetic peptide

<400> 46

Trp Val Ala Val Thr Pro Thr Val Ala Thr Arg Asp Gly Lys Leu Pro
1 5 10 15

Thr Thr

<210> 47

<211> 18

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide

<400> 47

Val Ala Thr Arg Asp Gly Lys Leu Pro Thr Thr Gln Leu Arg Arg His
1 5 10 15

Ile Asp

<210> 48

<211> 18

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide

<400> 48

Leu Pro Thr Thr Gln Leu Arg Arg His Ile Asp Leu Leu Val Gly Ser
1 5 10 15

Ala Thr

<210> 49

<211> 18

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide

<400> 49

Arg His Ile Asp Leu Leu Val Gly Ser Ala Thr Leu Cys Ser Ala Leu
1 5 10 15

Tyr Val

<210> 50
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide

<400> 50

Gly Ser Ala Thr Leu Cys Ser Ala Leu Tyr Val Gly Asp Leu Cys Gly
1 5 10 15

Ser Val

<210> 51
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide

<400> 51

Ala Leu Tyr Val Gly Asp Leu Cys Gly Ser Val Phe Leu Val Gly Gln
1 5 10 15

Leu Phe

<210> 52
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide

<400> 52

Cys Gly Ser Val Phe Leu Val Gly Gln Leu Phe Thr Phe Ser Pro Arg
1 5 10 15

His His

<210> 53
<211> 18
<212> PRT
<213> Artificial Sequence

<220>

<223> Synthetic peptide

<400> 53

Gly Gln Leu Phe Thr Phe Ser Pro Arg His His Trp Thr Thr Gln Asp
1 5 10 15

Cys Asn

<210> 54

<211> 18

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide

<400> 54

Pro Arg His His Trp Thr Thr Gln Asp Cys Asn Cys Ser Ile Tyr Pro
1 5 10 15

Gly His

<210> 55

<211> 18

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide

<400> 55

Gln Asp Cys Asn Cys Ser Ile Tyr Pro Gly His Ile Thr Gly His Arg
1 5 10 15

Met Ala

<210> 56

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide

<400> 56

Tyr Pro Gly His Ile Thr Gly His Arg Met Ala Asn Met Met Met Asn
1 5 10 15

Trp

<210> 57
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide

<400> 57

His	Arg	Met	Ala	Asn	Met	Met	Met	Asn	Trp	Ser	Pro	Thr	Ala	Ala	Leu
1				5					10					15	

Val

<210> 58
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide

<400> 58

Met	Met	Asn	Trp	Ser	Pro	Thr	Ala	Ala	Leu	Val	Val	Ala	Gln	Leu	Leu
1				5					10					15	

Arg Ile

<210> 59
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide

<400> 59

Ala	Ala	Leu	Val	Val	Ala	Gln	Leu	Leu	Arg	Ile	Pro	Gln	Ala	Ile	Met
1				5					10					15	

Asp Met

<210> 60
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide

<400> 60

Leu Leu Arg Ile Pro Gln Ala Ile Met Asp Met Ile Ala Gly Ala His
1 5 10 15

Trp Gly

<210> 61

<211> 18

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide

<400> 61

Ile Met Asp Met Ile Ala Gly Ala His Trp Gly Val Leu Ala Gly Ile
1 5 10 15

Lys Tyr

<210> 62

<211> 18

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide

<400> 62

Ala His Trp Gly Val Leu Ala Gly Ile Lys Tyr Phe Ser Met Val Gly
1 5 10 15

Asn Trp

<210> 63

<211> 18

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide

<400> 63

Gly Ile Lys Tyr Phe Ser Met Val Gly Asn Trp Ala Lys Val Leu Val
1 5 10 15

Val Leu

<210> 64

<211> 18
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic peptide

<400> 64

Val Gly Asn Trp Ala Lys Val Leu Val Val Leu Leu Leu Phe Ala Gly
 1 5 10 15

Val Asp

<210> 65
 <211> 18
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic peptide

<400> 65

Leu Val Val Leu Leu Leu Phe Ala Gly Val Asp Ala Glu Thr His Val
 1 5 10 15

Thr Gly

<210> 66
 <211> 496
 <212> PRT
 <213> Tick borne encephalitis virus

<400> 66

Ser Arg Cys Thr His Leu Glu Asn Arg Asp Phe Val Thr Gly Thr Gln
 1 5 10 15

Gly Thr Thr Arg Val Thr Leu Val Leu Glu Leu Gly Gly Cys Val Thr
 20 25 30

Ile Thr Ala Glu Gly Lys Pro Ser Met Asp Val Trp Leu Asp Ala Ile
 35 40 45

Tyr Gln Glu Asn Pro Ala Lys Thr Arg Glu Tyr Cys Leu His Ala Lys
 50 55 60

Leu Ser Asp Thr Lys Val Ala Ala Arg Cys Pro Thr Met Gly Pro Ala
 65 70 75 80

Thr Leu Ala Glu Glu His Gln Gly Gly Thr Val Cys Lys Arg Asp Gln
 85 90 95

Ser Asp Arg Gly Trp Gly Asn His Cys Gly Leu Phe Gly Lys Gly Ser

100					105					110					
Ile	Val	Ala	Cys	Val	Lys	Ala	Ala	Cys	Glu	Ala	Lys	Lys	Lys	Ala	Thr
		115					120					125			
Gly	His	Val	Tyr	Asp	Ala	Asn	Lys	Ile	Val	Tyr	Thr	Val	Lys	Val	Glu
		130					135					140			
Pro	His	Thr	Gly	Asp	Tyr	Val	Ala	Ala	Asn	Glu	Thr	His	Ser	Gly	Arg
							150					155			160
Lys	Thr	Ala	Ser	Phe	Thr	Ile	Ser	Ser	Glu	Lys	Thr	Ile	Leu	Thr	Met
				165					170					175	
Gly	Glu	Tyr	Gly	Asp	Val	Ser	Leu	Leu	Cys	Arg	Val	Ala	Ser	Gly	Val
			180						185					190	
Asp	Leu	Ala	Gln	Thr	Val	Ile	Leu	Glu	Leu	Asp	Lys	Thr	Val	Glu	His
		195							200					205	
Leu	Pro	Thr	Ala	Trp	Gln	Val	His	Arg	Asp	Trp	Phe	Asn	Asp	Leu	Ala
		210							215					220	
Leu	Pro	Trp	Lys	His	Glu	Gly	Ala	Gln	Asn	Trp	Asn	Asn	Ala	Glu	Arg
		225							230					235	240
Leu	Val	Glu	Phe	Gly	Ala	Pro	His	Ala	Val	Lys	Met	Asp	Val	Tyr	Asn
				245					250					255	
Leu	Gly	Asp	Gln	Thr	Gly	Val	Leu	Leu	Lys	Ala	Leu	Ala	Gly	Val	Pro
			260						265					270	
Val	Ala	His	Ile	Glu	Gly	Thr	Lys	Tyr	His	Leu	Lys	Ser	Gly	His	Val
			275						280					285	
Thr	Cys	Glu	Val	Gly	Leu	Glu	Lys	Leu	Lys	Met	Lys	Gly	Leu	Thr	Tyr
		290							295					300	
Thr	Met	Cys	Asp	Lys	Thr	Lys	Phe	Thr	Trp	Lys	Arg	Ile	Ala	Thr	Asp
									310					315	320
Ser	Gly	His	Asp	Thr	Val	Val	Met	Glu	Val	Thr	Phe	Ser	Gly	Thr	Lys
				325					330					335	
Pro	Cys	Arg	Ile	Pro	Val	Arg	Ala	Val	Ala	His	Gly	Ser	Pro	Asp	Val
				340					345					350	
Asn	Val	Ala	Met	Leu	Ile	Thr	Pro	Asn	Pro	Thr	Ile	Glu	Asn	Asn	Gly
				355					360					365	
Gly	Gly	Phe	Ile	Glu	Met	Gln	Leu	Pro	Pro	Gly	Asp	Asn	Ile	Ile	Tyr
				370					375					380	
Val	Gly	Glu	Leu	Ser	His	Gln	Trp	Phe	Gln	Lys	Gly	Ser	Ser	Ile	Gly
				385					390					395	400
Arg	Val	Phe	Gln	Lys	Thr	Arg	Lys	Gly	Ile	Glu	Arg	Leu	Thr	Val	Ile

				405						410					415
Gly	Glu	His	Ala	Trp	Asp	Phe	Gly	Ser	Ala	Gly	Gly	Phe	Leu	Ser	Ser
			420					425					430		
Ile	Gly	Lys	Ala	Val	His	Thr	Val	Leu	Gly	Gly	Ala	Phe	Asn	Ser	Ile
		435					440					445			
Phe	Gly	Gly	Val	Gly	Phe	Leu	Pro	Lys	Leu	Leu	Leu	Gly	Val	Ala	Leu
	450					455					460				
Ala	Trp	Leu	Gly	Leu	Asn	Met	Arg	Asn	Pro	Thr	Met	Ser	Met	Ser	Phe
465					470					475					480
Leu	Leu	Ala	Gly	Gly	Leu	Val	Leu	Ala	Met	Thr	Leu	Gly	Val	Gly	Ala
				485					490					495	

<210> 67
 <211> 168
 <212> PRT
 <213> Hepatitis C virus

<400> 67

Tyr	Gln	Val	Arg	Asn	Ser	Ser	Gly	Leu	Tyr	His	Val	Thr	Asn	Asp	Cys
1				5					10					15	
Pro	Asn	Ser	Ser	Val	Val	Tyr	Glu	Ala	Ala	Asp	Ala	Ile	Leu	His	Thr
			20				25					30			
Pro	Gly	Cys	Val	Pro	Cys	Val	Arg	Glu	Gly	Asn	Ala	Ser	Arg	Cys	Trp
		35					40					45			
Val	Ala	Val	Thr	Pro	Thr	Val	Ala	Thr	Arg	Gly	Lys	Leu	Pro	Thr	Thr
	50					55					60				
Gln	Leu	Arg	Arg	His	Ile	Asp	Leu	Leu	Val	Gly	Ser	Ala	Thr	Leu	Cys
65					70					75					80
Ser	Ala	Leu	Tyr	Val	Gly	Asp	Leu	Cys	Gly	Ser	Val	Phe	Leu	Val	Gly
				85					90					95	
Gln	Leu	Phe	Thr	Phe	Ser	Pro	Arg	His	His	Trp	Thr	Thr	Gln	Asp	Cys
			100					105					110		
Asn	Cys	Ser	Ile	Tyr	Pro	Gly	His	Ile	Thr	Gly	His	Arg	Met	Ala	Trp
		115				120						125			
Asn	Met	Met	Met	Asn	Trp	Ser	Pro	Thr	Ala	Ala	Leu	Val	Val	Ala	Gln
	130					135					140				
Leu	Leu	Arg	Ile	Pro	Gln	Ala	Ile	Met	Asp	Met	Ile	Ala	Gly	Ala	His
145					150				155						160
Trp	Gly	Val	Leu	Ala	Gly	Ile	Lys								
					165										

<210> 68
 <211> 366
 <212> PRT
 <213> Classical swine fever virus

<400> 68

Gly	Gln	Leu	Ala	Cys	Lys	Glu	Asp	Tyr	Arg	Tyr	Ala	Ile	Ser	Ser	Thr
1				5					10					15	
Asn	Glu	Ile	Gly	Leu	Leu	Gly	Ala	Gly	Gly	Leu	Thr	Thr	Thr	Trp	Lys
			20					25						30	
Glu	Tyr	Asn	Asp	Leu	Gln	Leu	Asn	Asp	Gly	Thr	Val	Lys	Ile	Cys	Val
		35					40					45			
Ala	Gly	Ser	Phe	Lys	Val	Thr	Ala	Leu	Asn	Val	Val	Ser	Arg	Arg	Tyr
	50					55					60				
Val	Leu	Ala	Ser	Leu	His	Lys	Lys	Ala	Leu	Pro	Ile	Ser	Val	Thr	Phe
65					70					75					80
Glu	Leu	Leu	Phe	Asp	Gly	Thr	Asn	Pro	Ser	Thr	Glu	Glu	Met	Glu	Asp
				85					90					95	
Asp	Phe	Gly	Phe	Gly	Leu	Cys	Pro	Phe	Asp	Thr	Ser	Pro	Val	Val	Lys
			100					105					110		
Gly	Lys	Tyr	Asn	Thr	Thr	Leu	Leu	Asn	Gly	Ser	Ala	Phe	Tyr	Leu	Val
		115					120					125			
Cys	Pro	Ile	Gly	Trp	Thr	Gly	Val	Ile	Glu	Cys	Thr	Ala	Val	Ser	Pro
	130					135					140				
Thr	Thr	Leu	Arg	Thr	Glu	Val	Val	Lys	Thr	Phe	Arg	Arg	Asp	Lys	Pro
145					150					155					160
Phe	Pro	His	Arg	Met	Asp	Cys	Val	Thr	Thr	Thr	Val	Glu	Asn	Glu	Asp
				165					170					175	
Leu	Phe	Tyr	Cys	Lys	Leu	Gly	Gly	Asn	Trp	Thr	Cys	Val	Lys	Gly	Glu
			180					185					190		
Pro	Val	Val	Tyr	Thr	Gly	Gly	Val	Val	Lys	Gln	Cys	Arg	Trp	Cys	Gly
		195					200					205			
Phe	Asp	Phe	Asn	Glu	Pro	Asp	Gly	Leu	Pro	His	Tyr	Pro	Ile	Gly	Lys
	210					215					220				
Cys	Ile	Leu	Ala	Asn	Glu	Thr	Gly	Tyr	Arg	Ile	Val	Asp	Ser	Thr	Asp
225					230					235					240
Cys	Asn	Arg	Asp	Gly	Val	Val	Ile	Ser	Thr	Glu	Gly	Ser	His	Glu	Cys
				245					250					255	
Leu	Ile	Gly	Asn	Thr	Thr	Val	Lys	Val	His	Ala	Ser	Asp	Glu	Arg	Leu
			260					265					270		

Gly Pro Met Pro Cys Arg Pro Lys Glu Ile Val Ser Ser Ala Gly Pro
 275 280 285
 Val Arg Lys Thr Ser Cys Thr Phe Asn Tyr Ala Lys Thr Leu Lys Asn
 290 295 300
 Lys Tyr Tyr Glu Pro Arg Asp Ser Tyr Phe Gln Gln Tyr Met Leu Lys
 305 310 315 320
 Gly Glu Tyr Gln Tyr Trp Phe Asp Leu Asp Val Thr Asp Arg His Ser
 325 330 335
 Asp Tyr Phe Ala Glu Phe Val Val Leu Val Val Val Ala Leu Leu Gly
 340 345 350
 Gly Arg Tyr Ile Leu Trp Leu Ile Val Thr Tyr Ile Val Leu
 355 360 365

<210> 69
 <211> 90
 <212> PRT
 <213> Hepatitis C virus

<400> 69

Tyr Phe Ser Met Val Gly Asn Trp Ala Lys Val Leu Val Val Leu Leu
 1 5 10 15
 Leu Phe Ala Gly Val Asp Ala Glu Thr His Val Thr Gly Gly Asn Ala
 20 25 30
 Gly Arg Thr Thr Ala Gly Leu Val Gly Leu Leu Thr Pro Gly Ala Lys
 35 40 45
 Gln Asn Ile Gln Leu Ile Asn Thr Asn Gly Ser Trp His Ile Asn Ser
 50 55 60
 Thr Ala Leu Asn Cys Asn Glu Ser Leu Asn Thr Gly Trp Leu Ala Gly
 65 70 75 80
 Leu Phe Tyr Gln His Lys Phe Asn Ser Ser
 85 90

<210> 70
 <211> 89
 <212> PRT
 <213> Hepatitis C virus

<400> 70

Gly Cys Pro Glu Arg Leu Ala Ser Cys Arg Arg Leu Thr Asp Phe Ala
 1 5 10 15
 Gln Gly Trp Gly Pro Ile Ser Tyr Ala Asn Gly Ser Gly Leu Asp Glu
 20 25 30

Arg Pro Tyr Cys Trp His Tyr Pro Pro Arg Pro Cys Gly Ile Val Pro
 35 40 45

Ala Lys Ser Val Cys Gly Pro Val Tyr Cys Phe Thr Pro Ser Val Val
 50 55 60

Val Gly Thr Thr Asp Arg Ser Gly Ala Pro Thr Tyr Ser Trp Gly Ala
 65 70 75 80

Asn Asp Thr Asp Val Phe Val Leu Asn
 85

<210> 71
 <211> 195
 <212> PRT
 <213> Hepatitis C virus

<400> 71

Trp Phe Gly Cys Thr Trp Met Asn Ser Thr Gly Phe Thr Lys Val Cys
 1 5 10 15

Gly Ala Pro Pro Cys Val Ile Gly Gly Val Gly Asn Asn Thr Leu Leu
 20 25 30

Cys Pro Thr Asp Cys Phe Arg Lys Tyr Pro Glu Ala Thr Tyr Ser Arg
 35 40 45

Cys Gly Ser Gly Pro Arg Ile Thr Pro Arg Cys Met Val Asp Tyr Pro
 50 55 60

Tyr Arg Leu Trp His Tyr Pro Cys Thr Ile Asn Tyr Thr Ile Phe Lys
 65 70 75 80

Val Arg Met Tyr Val Gly Gly Val Glu His Arg Leu Glu Ala Ala Cys
 85 90 95

Asn Trp Thr Arg Gly Glu Arg Cys Asp Leu Glu Asp Arg Asp Arg Ser
 100 105 110

Glu Leu Ser Pro Leu Leu Leu Ser Thr Thr Gln Trp Gln Val Leu Pro
 115 120 125

Cys Ser Phe Thr Thr Leu Pro Ala Leu Ser Thr Gly Leu Ile His Leu
 130 135 140

His Gln Asn Ile Val Asp Val Gln Tyr Ile Tyr Gly Val Gly Ser Ser
 145 150 155 160

Ile Ala Ser Trp Ala Ile Lys Trp Glu Tyr Val Val Leu Leu Phe Leu
 165 170 175

Leu Leu Ala Asp Ala Arg Val Cys Ser Cys Leu Trp Met Met Leu Leu
 180 185 190

Ile Ser Gln
 195

<210> 72
 <211> 167
 <212> PRT
 <213> Tick borne encephalitis virus

<400> 72

Thr	Leu	Ala	Ala	Thr	Val	Arg	Lys	Glu	Arg	Asp	Gly	Ser	Thr	Val	Ile
1				5					10					15	
Arg	Ala	Glu	Gly	Lys	Asp	Ala	Ala	Thr	Gln	Val	Arg	Val	Glu	Asn	Gly
			20					25					30		
Thr	Cys	Val	Ile	Leu	Ala	Thr	Asp	Met	Gly	Ser	Trp	Cys	Asp	Asp	Ser
		35					40					45			
Leu	Ser	Tyr	Glu	Cys	Val	Thr	Ile	Asp	Gln	Gly	Glu	Glu	Pro	Val	Asp
	50					55					60				
Val	Asp	Cys	Phe	Cys	Arg	Asn	Val	Asp	Gly	Val	Tyr	Leu	Glu	Tyr	Gly
65					70				75						80
Arg	Cys	Gly	Lys	Gln	Glu	Gly	Ser	Arg	Thr	Arg	Arg	Ser	Val	Leu	Ile
				85					90					95	
Pro	Ser	His	Ala	Gln	Gly	Glu	Leu	Thr	Gly	Arg	Gly	His	Lys	Trp	Leu
			100					105					110		
Glu	Gly	Asp	Ser	Leu	Arg	Thr	His	Leu	Thr	Arg	Val	Glu	Gly	Trp	Val
		115					120					125			
Trp	Lys	Asn	Lys	Leu	Leu	Ala	Leu	Ala	Met	Val	Thr	Val	Val	Trp	Leu
	130					135					140				
Thr	Leu	Glu	Ser	Val	Val	Thr	Arg	Val	Ala	Val	Leu	Val	Val	Leu	Leu
145					150				155						160
Cys	Leu	Ala	Pro	Val	Tyr	Ala									
				165											

<210> 73
 <211> 194
 <212> PRT
 <213> Classical swine fever virus

<400> 73

Leu	Ser	Pro	Tyr	Cys	Asn	Val	Thr	Ser	Lys	Ile	Gly	Tyr	Ile	Trp	Tyr
1				5					10					15	
Thr	Asn	Asn	Cys	Thr	Pro	Ala	Cys	Leu	Pro	Lys	Asn	Thr	Lys	Ile	Ile
			20					25					30		
Gly	Pro	Gly	Lys	Phe	Asp	Thr	Asn	Ala	Glu	Asp	Gly	Lys	Ile	Leu	His
		35					40					45			

Glu Met Gly Gly His Leu Ser Glu Phe Leu Leu Leu Ser Leu Val Val
 50 55 60
 Leu Ser Asp Phe Ala Pro Glu Thr Ala Ser Ala Leu Tyr Leu Ile Phe
 65 70 75 80
 His Tyr Val Ile Pro Gln Ser His Glu Glu Pro Glu Gly Cys Asp Thr
 85 90 95
 Asn Gln Leu Asn Leu Thr Val Glu Leu Arg Thr Glu Asp Val Ile Pro
 100 105 110
 Ser Ser Val Trp Asn Val Gly Lys Tyr Val Cys Val Arg Pro Asp Trp
 115 120 125
 Trp Pro Tyr Glu Thr Lys Val Ala Leu Leu Phe Glu Glu Ala Gly Gln
 130 135 140
 Val Val Lys Leu Ala Leu Arg Ala Leu Arg Asp Leu Thr Arg Val Trp
 145 150 155 160
 Asn Ser Ala Ser Thr Thr Ala Phe Leu Ile Cys Leu Ile Lys Val Leu
 165 170 175
 Arg Gly Gln Ile Val Gln Gly Val Ile Trp Leu Leu Leu Val Thr Gly
 180 185 190

Ala Gln

<210> 74
 <211> 198
 <212> PRT
 <213> Human immunodeficiency virus

<400> 74

Ala Val Gly Ile Gly Ala Leu Phe Leu Gly Phe Leu Gly Ala Ala Gly
 1 5 10 15
 Ser Thr Met Gly Ala Ala Ser Met Thr Leu Thr Val Gln Ala Arg Gln
 20 25 30
 Ile Leu Ser Gly Ile Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile
 35 40 45
 Glu Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln
 50 55 60
 Leu Gln Ala Arg Ile Leu Ala Val Glu Arg Tyr Leu Lys Asp Gln Gln
 65 70 75 80
 Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr Thr Ala
 85 90 95
 Val Pro Trp Asn Ala Ser Trp Ser Asn Lys Ser Leu Glu Gln Ile Trp
 100 105 110

Asn His Thr Thr Trp Met Glu Trp Asp Arg Glu Ile Asn Asn Tyr Thr
 115 120 125

Ser Leu Ile His Ser Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu Lys
 130 135 140

Asn Glu Gln Glu Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu Trp Asn
 145 150 155 160

Trp Phe Asn Ile Thr Asn Trp Leu Trp Tyr Ile Leu Phe Ile Met Ile
 165 170 175

Val Gly Gly Leu Val Gly Leu Arg Ile Val Phe Ala Val Leu Ser Ile
 180 185 190

Val Asn Arg Val Arg Gln
 195

<210> 75
 <211> 190
 <212> PRT
 <213> Hepatitis C virus

<400> 75

Tyr Gln Val Arg Asn Ser Ser Gly Leu Tyr His Val Thr Asn Asp Cys
 1 5 10 15

Pro Asn Ser Ser Val Val Tyr Glu Ala Ala Asp Ala Ile Leu His Thr
 20 25 30

Pro Gly Cys Val Pro Cys Val Arg Glu Gly Asn Ala Ser Arg Cys Trp
 35 40 45

Val Ala Thr Pro Thr Val Ala Thr Arg Asp Gly Lys Leu Pro Thr Thr
 50 55 60

Gln Leu Arg Arg His Ile Asp Leu Leu Val Gly Ser Ala Thr Leu Cys
 65 70 75 80

Ser Ala Leu Tyr Trp Val Gly Asp Leu Cys Gly Ser Val Phe Leu Val
 85 90 95

Gly Gln Leu Phe Thr Phe Ser Pro Arg His His Trp Thr Thr Gln Asp
 100 105 110

Cys Asn Cys Ser Ile Tyr Pro Gly His Ile Thr Gly His Arg Met Ala
 115 120 125

Trp Asn Met Met Met Asn Trp Ser Pro Thr Ala Ala Val Val Ala Gln
 130 135 140

Leu Leu Arg Ile Pro Ala Ile Met Asp Met Ile Ala Gly Ala His Trp
 145 150 155 160

Gly Val Leu Ala Gly Ile Lys Tyr Phe Ser Met Val Gly Asn Trp Ala

				165					170					175
Lys	Val	Leu	Val	Val	Leu	Leu	Leu	Phe	Ala	Gly	Val	Asp	Ala	
			180					185					190	